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THE DIPLOMA IN VETERINARY STATE MEDICINE AND THE FELLOWSHIP DEGREE.

At the next Council meeting, the Draft of the new Supplementary Charter will be considered and, with or without some modifications of detail, will probably be finally adopted. It contains provisions for the new Diploma in Veterinary State Medicine or "Public Health Diploma," and the new regulations for the Fellowship Degree will only come into force if the Charter is obtained.

The syllabus for the Public Health Diploma is comprehensive, and includes every subject of import to the veterinary sanitarian. But the regulations as to qualification are vague, and at least appear open to criticism. A candidate, after obtaining the M.R.C.V.S. degree, must spend at least "six months practical instruction in meat inspection, hygiene of byres, stables, and markets, under veterinary inspectors or teachers recognised for that purpose by the R.C.V.S.," and a further period of six months' attendance at approved courses of instruction at an affiliated school.

The first point here is—what is meant by this first six months' instruction under a specially recognised teacher or inspector? Would the same period spent in salaried junior employment in the veterinary sanitary service satisfy the Council?—or does the clause really mean that certain inspectors are to be empowered to conduct classes for practical instruction which every candidate must attend at his own expense? This point needs clearing up, and there is another that should be emphasised. The second six months must be spent in study at an affiliated school; and this—even without the possibilities of the first six months—means a serious outlay in time and money. There are men now in junior posts in the public service, and others in private practice whose thoughts are turning the same way, to whom such an outlay would be impossible. These men are working to fit themselves for the service, and would succeed under the old conditions, but they cannot hope to do so under the new ones. When the Diploma is established, it will soon be practically impossible to obtain a good public appointment without it. Some provision could surely be made for men who are already approaching its standard of knowledge, but who cannot comply with its regulations.

It is not clear from what source the examiners are likely to be drawn; and the Draft Charter contains no provision for conferring the Diploma without examination. This omission is singular, for we have many men already in the public service whom it would be absurd to either examine or expect to attend classes. The scheme looks a good one so far as new graduates who intend to take up public health work are concerned; but these are not the only class deserving of consideration.

No one would suggest that every member now doing public health work should either receive the diploma without examination, or be admitted to examination without further training. But some certainly ought to be admitted without examination, and, for a year at least, there should be more elasticity than is apparent in the qualifying regulations. If not, some good men will be shut out from the diploma altogether.

The new Fellowship examination will be far more specialised than the present one. Candidates may elect to be examined in any one of nine branches, viz., anatomy (including surgical anatomy), physiology, pathology (including bacteriology and protozoology), helminthology and entomology, pharmacology, and toxicology, medicine, tropical medicine, surgery, and sanitary science and administration. A thesis and its defence will form the main examination; and though the examiners may add a practical or a written examination, they will be confined to the special branch chosen by the candidate. It will no longer be necessary for a pathologist or sanitarian to pass a written examination in medicine and surgery, or for a clinician to do likewise in bacteriology, as is the case at present. These numerous branches will necessitate a large staff of examiners, some of whom will have very little to do, for some of the subjects will attract very few candidates. It may, too, be difficult to fill some of the examinerships satisfactorily without going outside the profession. The men most in touch with veterinary tropical medicine chiefly reside abroad, and physiologists and toxicologists have always been rare within our own ranks. We believe that the regulations are being altered with quite the right aims. The increased specialisation of the Fellowship degree must greatly enhance its value; and the inclusion of medicine and surgery as special branches will leave it always as accessible to the practising clinician as to any other man.

Lastly, it is important to note that, even in public health, the Fellowship degree will still remain our premier one. The Fellowship examination in sanitary science and administration will be open only to holders of the Public Health diploma. The veterinary sanitarian of the future, after first qualifying as a member, will take the Public Health diploma as an indispensable step towards a good appointment. Afterwards, if ambitious, he may take the Fellowship degree in sanitary science as a special mark of distinction. Some men may also take a B.Sc., but it seems quite possible that the new Fellowship degree may supersede those from Universities.

AN ABDOMINAL LESION.

Subject.—A valuable Shire mare, five years old.

History.—The mare had been turned out all the summer, and on the night of the 3rd-4th inst. had strayed into a field containing some stacks of barley ready for threshing. She had apparently eaten her fill, and on the morning of 5th began to show some slight uneasiness. The owner administered two bottles of Gaseous fluid, and, according to him, temporary relief resulted. Attacks of pain became more insistent, however, and at 8 p.m. on the 5th I was summoned.

Symptoms and Treatment.—Temperature 104·8 F. Pulse 90, frequent, small and tense. Visible membranes injected. The mucous membrane of the mouth was inflamed, and some vesicles were present. This condition I attributed to the above-mentioned Gaseous fluid, the more so as the owner reluctantly confessed that the mare had rubbed her mouth on the manger with extreme vigour after the administration of this "marvellous vegetable remedy." The face was "drawn," and there was frequent turning up of the lips. Pain was spasmodic in character, and intense during the spasms, the favourite position being on the side with all four legs drawn close to the body. Body was covered with patchy sweat. Borborygmus was barely noticeable. The rectum was dilated and empty. No fæces had been passed since the previous evening. My diagnosis was "wait and see," and prognosis guarded—very.

I administered 1½ pints of linseed oil, and digalen hypodermically, also two chloral hydrate balls, each containing half an ounce of the drug.

5th, 11.30 p.m.—Animal has had some relief, but within the last hour pain has been constant. Pulse is not so good, probably digalen has been too depressing.

Administered liq. strych. hcl. ʒii. and digalen ʒii. hypodermically. Hot enemata seem to give relief, so decide to stick to them for a while.

From now till 4 a.m. administered hot enemata every half hour (three gallons), and notice that they are being held longer as time goes on.

At 3.30 a.m., on rectal exploration discover a small piece of fæces in the rectum. On withdrawal, this proved to be a perfect cast of the bowel containing hardened fæces. The cast was in the form of a tube about 4½ inches in length, fairly tough, and black in colour. Following the removal of this cast, about a pint of liquid fæces, apparently mixed with disintegrated blood, came away.

6th, 6.30 a.m. Violent pain ceased. In the meantime a small quantity of blood-stained fæces has been passed. Pulse is wretched in tone, and a tenseness of the abdominal walls together with an agonised expression on the face point to peritonitis now being present.

Treatment. Nux vomica ʒss., digitalis ʒss. every three hours. I also managed to visit the case three times during the day and gave copious *hot* enemata.

7th. Mare much improved. Abdominal wall less tense. Temperature 102, pulse 50. Treatment continued, but powders given every four hours.

8th. Mare normal, and feeding as much as she is allowed. All treatment stopped.

9th. Mare still normal, and of course one has to finish visiting.

Remarks. The only interest about this case to me is in the fact that it is the first time that I have seen a cast of the bowel passed per rectum in the horse.

I have seen the phenomenon on various occasions in cattle under the conditions in which the owner in Ireland tells you "Sure an' she passed a lump of a tree" (this from the gnarled appearance of the wrinkled mucous membrane); and also some shreds of membrane passed by horses, but never a complete and perfect cast. I suppose it was a case of intussusception.

R. F. Stirling, F.R.C.V.S.

Lancaster.

RUPTURE OF UTERUS IN A COW—A WARNING.

Some four weeks ago I was called to a five-year-old cow, which was said to have been off her feed for some days and constipated. The owner had administered certain potions, including the ubiquitous red drench. She was due to calve in a week's time.

The temperature was subnormal, the pulse weak. There was extreme dullness and enlargement of the abdomen. The patient emitted a low moan every few seconds.

On proceeding to examine the uterus, I found the os fully dilated, and a little further, on the left side towards the floor of the womb, a rupture large enough to admit a calf's head. I passed my hand through and felt the bowels and bladder. The fœtal membranes were already ruptured, and the calf had apparently been dead some days.

I explained the condition to the owner, and assured him, with no little confidence, that the cow would die. We decided to deliver the calf, and as there was very little contraction in the ruptured uterus, we experienced some difficulty. And I went my way.

A week later an old professional friend spent an evening with me, and I mentioned the case to him. "Take care you don't get a rude shock" he said, "I had a similar case last year, and prognosticated as you did, but the cow recovered. There was this difference, that in my case the rupture was in the roof, and in yours towards the floor of the uterus." This made me curious to know the fate of my cow, which was a good many miles away.

A few days ago I met my client. He is, fortunately, brimful of human nature. He wore a roguish smile and whispered "would you advise me to fatten that cow or keep her for breeding again? She never looked back."

L. W. Wynn Lloyd.

Carnarvon.

ANOTHER UNEXPLAINED LAMENESS.

Apropos of Mr. Howard's article on "A puzzle in lameness," the following case may be of interest.

A mare of my own, a four-year-old half-bred Irish hunter, frequently goes dead lame at the walk, in the off hind leg. This is especially marked when the mare is in any way excited, as for instance when she is out with hounds. In fact it becomes a nuisance, as I am so often asked if I know that my mare is lame behind. At the trot she is perfectly sound, and when not excited, and walking with a loose rein, she is, as a rule, sound. It is not a peculiarity of action, it is a distinct lameness, the stride being shortened by one half that of the near hind. When led she invariably walks quite normally. The interest of such cases is principally from the aspect of veterinary jurisprudence. Is such an animal technically sound?

In the case of Mr. Howard's patient the animal would be unsound, as there would be inability for work; but there is no such inability in the case of my mare. The drawback would be the unpleasantness of riding an animal thought to be lame by the average observer. The cause would appear to be undoubtedly of nervous origin, not to be defined more precisely than a functional disorganisation—a sort of hysteria. I should like an opinion from a jurisprudence point of view.

WAKEFIELD RAINEY.

ABSTRACTS FROM FOREIGN JOURNALS.

POISONING BY TOBACCO JUICE IN CATTLE.

Giovanoli has published (*Schweizer Archiv.*) an article which proves that the employment of tobacco juice for the destruction of cutaneous parasites in cattle is far from being inoffensive. His first observation is the following. About 10 o'clock in the morning four cattle—one two-year-old ox, one three-year-old cow, and two heifers aged eight and thirteen months respectively—were washed with a solution of tobacco juice to rid them of lice. Two hours later the two heifers were found in a very critical condition. The breathing was accelerated and noisy, the whole body showed muscular trembling, the head and neck executed irregular movements, and the eyes were fixed. Both heifers stamped constantly with the hind feet, and one discharged softened fæcal matter. The mouth could only be opened with great difficulty. Three hours after this, both the heifers were dead; while the two other animals which had been dressed with the same solution showed no abnormal symptoms.

The post-mortem examination of the heifers was carried out quickly. All the visible mucous membranes were markedly injected, and the pupils were dilated. The internal organs were normal, except that the lungs were engorged with blood and showed a blackish-red colouration. The blood was fluid, and had a black tar-like colour; when exposed to the air it rapidly became red.

The author's second observation is as follows. He was called to a two-year-old ox, which had been washed with a solution of tobacco juice to rid it of lice, and found that it had been thought necessary to slaughter the animal before his arrival. The ox had begun to tremble and sweat, an alarming tympany had appeared, and progression had become staggering to such a degree that the animal threatened to fall at every step. Two cows which had been treated with tobacco juice at the same time, but a little less energetically, showed somewhat similar symptoms. Four hours after having been washed with the solution they showed embarrassed respiration, weak and frequent pulse, cold horns, slight tympany, and profuse sweating. These symptoms, however, never became alarming in the two cows, while the ox had to be slaughtered.

The post-mortem examination of the ox revealed no lesions except those of pulmonary tuberculosis. No internal organ and no muscle gave forth an odour of tobacco. As a cooking test of a piece of muscle revealed no special odour, the flesh was declared fit for consumption. The tobacco juice used had come from a cigar manufactory, and had been mixed in water in the proportion of 6 per cent. The solution had been rubbed upon the back, and upon the sides of the neck and shoulders.—(*Annales de Méd. Vét.*)

ECHINOCOCCI IN HEART MUSCLE.

G. Giavonali, of Soglio records (*Schweizer Archiv.*) three cases of this occurrence, all very similar.

The first was a working ox which, while drawing a heavy load along a difficult road, suddenly showed great difficulty of breathing, trembled all over, and fell dead. Post-mortem, a whitish convexity was found in the middle of the left wall of the heart. This proved to be an echinococcus cyst containing about 4½ oz. of fluid.

Another working ox, which died while ploughing, had an echinococcus cyst the size of a hen's egg, in the left wall of the heart, projecting inwards into the ventricle.

The last case was a cow, which died suddenly at grass. Numerous echinococcus cysts were found in this animal's lung, and also one in the right wall of the heart.—(*Münchener Tier. Woch.*)

W. R. C.

THE PERSISTENCE OF THE BACILLUS OF INFECTIOUS ABORTION IN THE TISSUES OF ANIMALS.—By W. E. COTTON, D.V.M., Bureau of Animal Industry Experiment Station, Bethesda, Md. Presented to the 50th annual meeting of the American V.M.A. in New York, Sept., 1913. [Abstract].

The work from which the data was obtained was done at the Experiment Station of the Federal Bureau of Animal Industry, at Bethesda, Md., under the direction of Dr. E. C. Schroeder, Superintendent, to whose guidance and help I am greatly indebted both in making the observations and in preparing the data presented.

At the forty-eighth annual meeting of this Association Dr. Schroeder and I presented a paper (1) in which we described an organism that we had found to be

eliminated with the milk of a considerable number of apparently healthy cows ; that it was of common occurrence in market milk ; and that it produced lesions in guinea pigs which somewhat resembled those produced by the tubercle bacillus. At that time we had failed to identify the organism, which we now know to be that of infectious abortion.

To gain some information as to the constancy with which aborting cows eliminate this organism with their milk, and the length of time they persist in doing so, as well as that during which the genital tract remains infected after an abortion, careful watch was kept over all the cows at the Experiment Station ; infectious abortion being present among them and slowly infecting the entire herd.

The pre sence of the abortion bacillus in milk, as well as in other materials, was determined by the inoculation of guinea-pigs, in which, as we have pointed out, it produces c haracteristic lesions. We have also made cultures from many of the guinea-pigs showing these lesions, and recovered the bacillus from them. In making tests with guinea-pigs, two were inoculated in each instance. In making the milk tests, each guinea-pig received from 4 to 6 cubic centimetres of whole milk intra-abdominally ; in tests of other material the inoculations were usually made subcutaneously. It should be said of the guinea-pigs used in making these tests, as well for all those used for any purpose at the Experiment Station, that of the several thousand that we have autopsied since this investigation has been in progress, we have yet to find lesions of abortion disease in a single guinea-pig in which we had not a right to expect to find it. The work is thoroughly checked up by very many tests of milk and other materials, in which guinea-pigs were used, both in this and in other investigations.

The reproductive organs of a bull that had been used to serve some of the aborting cows, and the testicles of two bull calves, one of which had been fed and the other injected with cultures of the abortion bacillus, were tested for the presence of this bacillus, but it was not found to be present in any of them, though portions of practically all of the reproductive organs of the adult bull were used in making the tests. We were led to make the above tests because a large proportion of male guinea-pigs which are infected with abortion bacilli, develop grave lesions of the testicles and epididymides ; and we have found that these males infect females with which they copulate. We also found the lesions to be present in the epididymis of a rabbit that had received an introvenous injection of the abortion bacillus a number of weeks previously. We thought it possible that the organism might remain in the testicles and epididymides of the male bovine animals without producing visible lesions, as it does in the udder of the female. So far as our investigations have gone, it seems that the bull does not harbour the bacillus in this manner, but they have not yet progressed far enough to be conclusive.

In our milk tests, we found that of the cows at the Experiment Station nineteen have records of having aborted, of having eliminated the bacillus with their milk, or both. It will be necessary to give the records of a few of these in detail, because of some peculiar conditions in each, and in order to show the regularity with which the organism is eliminated from some animals.

Cow 637 is perhaps of the greatest interest, since it was she in which we first demonstrated that the bacillus was eliminated from the udder, and hence, we have a longer record of her than the other animals. She was purchased from the Maryland State Experiment Station, and according to its records aborted on Sept. 21, 1907, in the seventh month of pregnancy. She had aborted once since she has been at Bethesda, on July 25, 1911, in the fifth month of pregnancy, the abortion bacillus being found in the fetus.

The first test of her milk, made on February 20, 1909, was positive. Later tests were made as follows : Nine in 1909, four in 1910, fourteen in 1911, thirteen in 1912, and three in 1913: 44 including the first. With the exception of two, made two and three months after abortion, all were positive. She has thus eliminated the abortion bacillus almost continuously for at least 4¼ years ; and if counted from the time she is reported by the Maryland State Experiment Station to have aborted, which, judging by our experience with other cows, is the probable time at which the milk became infected, would make five years and eight months as the probable time that the organism has persisted in her udder. Her milk when last tested was just as virulent for guinea-pigs as it ever was, and we have no reason to believe but that the bacillus will persist in her udder permanently.

She produced a calf fifteen months after the last abortion occurred ; tests made of the placenta showed that the bacillus was absent.

A remarkable fact in connection with this cow, as well as with all cows that carry the abortion bacillus in their udders and yet abort a second time, is that the bacillus in the udder did not induce the production of sufficient anti-bodies to prevent the invasion of the uterus and consequent abortion. It is possible that abortion may have been caused by infection with another strain more virulent than the one in her udder, but this idea does not seem to be in harmony with the laws of immunity. An attenuated strain of an organism ought to induce some immunity against a more virulent one, and besides in this instance, as nearly as we could determine by cultural methods and guinea-pig tests, the organism from the udder and that from the fetus were identical.

Cow 479 is also of interest in this connection, since she has aborted twice, and because of the appearance of the abortion bacillus in the placenta discharged at a normal parturition, the third such since the last abortion, four years and five months after the abortion occurred. This seems to indicate that abortion bacilli sometimes appear in the uterus years after an abortion. but either because of the lateness of their appearance, or the high resistence of the organ, are prevented from damaging the placenta to such a degree as to cause abortion.

We have tested the placentæ of two other cows, each passed at the termination of the normal pregnancy following an abortion, and that from a normal birth in a cow that never aborted, but which harboured the abortion bacillus in her udder, all with negative results. Just how frequently the condition observed in cow 479 occurs, I am unable to say, but from the fact that one such case was found out of four animals tested, would indicate that it is not uncommon, and hence it follows, that if aborting cows are permitted to enter healthy herds, that the discharges from the uterus following a subsequent normal parturition must be regarded with suspicion.

While the condition found in this cow may be attributed to a new infection, it seems much more probable that it was due to the migration of the bacillus from the udder to the active uterus. We have found the supramammary glands of cows to be infected, showing that the bacilli were travelling towards the blood stream, and once in that, it is not difficult to conceive of them reaching the pregnant uterus, where, finding a favourable soil in the embryonic tissue which it contains, they multiply and set up disease. In some respects the abortion bacillus behaves much like the tubercle bacillus, which may remain latent at some point in the body, till conditions arise that make it possible for it to migrate from the original focus to some organ, the resis-

tence of which is below normal, and set up disease. The abortion bacillus, so far as we know, is able to develop only in the pregnant uterus and the udder; the former being the seat of its greater activity, comparable to the weakened organ in tuberculosis, and the udder the seat of the latent focus from which it is infected.

Tests of this cow's milk showed it to be infected when first tested, November 21, 1910, and that it was still infected May 5, 1913, twenty-nine months later. Sixteen tests made in 1912, and three in 1913, showed the bacillus to be present in all but two. She has, therefore, eliminated the abortion bacillus from her udder, to our knowledge, for twenty-nine months, and for the last sixteen months, at least, almost continuously. As her second abortion occurred four years and seven months previous to the last milk test, the organism must certainly have persisted since that time, and in all probability since the time of her first abortion, or for a period of five years and seven months. Separate tests made of milk from each quarter of her udder on May 5, 1913, showed that all quarters of this organ were infected.

Cow 751 has aborted twice, in her second and third pregnancies, on December 19, 1911, and on February 11, 1913. Abortion bacilli were found in placenta at first abortion, but not in fetus, and in both placenta and fetus at the last one. Repeated tests of vaginal scrapings proved that the bacillus was eliminated through this channel up to and including the thirteenth day following abortion. Several subsequent tests were negative. In one other animal, the vaginal scrapings were found to be infectious forty-six days after abortion. M'Fadyean and Stockman (2) found that the bacillus had disappeared from the uterus of a cow killed one month after aborting.

One observation made in connection with this cow proved that uterine discharges containing abortion bacilli can be exposed to the weather for a considerable time and the bacilli remain alive. A large quantity, perhaps 250 c.c., of clear mucous containing islands of chocolate coloured flocculent material was passed from her uterus on the eighth day after abortion. It was allowed to remain on the ground, exposed to the sun for ten days, the weather remaining clear for the most part and warm for the season of the year (February), by which time it had dried into a tough leatherly-like mass, which on being tested by guinea-pig inoculations, was found to contain living abortion bacilli. Unfortunately the material left after the tenth day of exposure was accidentally destroyed, so that we were not able to determine the maximum length of time that the bacillus will remain alive under these conditions.

This cow's milk was found to be infected at the first test made, nine days after her first abortion, and was still found to be infected when last tested, February 15, 1913, thirteen and one-half months later. Twenty-nine tests were made in 1912, and four, in addition to the last one, in 1913. Of all tests made, thirty-one were positive and four negative. She has, therefore, already eliminated the abortion bacillus almost continuously with her milk for thirteen and one-half months.

We have found the abortion bacillus to make its appearance in the milk of three cows before abortion occurred, and in one of these even before the beginning of the pregnancy which was terminated by an abortion. The one in which this occurred, No. 621, gave birth to a calf at term, on December 20, 1911; tests of milk made eight, thirteen, sixteen, and twenty days after, were all negative. The next one, however, made sixty-five days after the birth of the calf, was positive, as were also two others, made six and fifteen days after this. She was served fifty-two days after the bacillus was first found in her milk, and aborted on November 4, 1912, two hundred and fifty-five days after it was found. Tests of her milk made in the third, fourth, fifth, and sixth months of her pregnancy were all positive, as were also daily tests made the first week after abortion, and six others made at irregular intervals, the last of which was made on May 26, 1913. She has then continuously eliminated the bacillus with her milk beginning nearly two months before the beginning of a pregnancy which was terminated by an abortion, and has continued to do so with great regularity up to the last time her milk was tested, a period of fifteen months.

The record of this animal shows that a cow's milk may become infected before conception, and seems to indicate that instead of the presence of the bacillus inducing immunity when introduced at this time, as has been supposed, it is stored in the udder till the uterus by becoming active furnishes a soil for its rapid multiplication. It seems, therefore, that any system of immunisation that depends on the subcutaneous or intravenous injections of living cultures of this organism before conception is unsafe; for it would not only probably make most of the animals so treated carriers, and contaminate their milk, but would, at least occasionally, set up active disease. I do not want to be understood as opposed to efforts to evolve methods for immunisation, and I hope that something can be done in this direction, but immunity in this disease seems to be such an uncertain quantity, and the possibilities for evil in this organism, not only for animals but for man as well, so great that we had better go slowly.

Three cows, Nos. 171, 503, and 638, have never aborted, yet have continued to harbor the abortion bacillus in their udders. They are somewhat like those cases in man which continue to harbor the typhoid bacillus though they have never manifested symptoms of the disease. For some reason, the uteri of these cows seem to have either inherited or acquired sufficient resistence to prevent the organism from developing there, at least to such an extent as to produce abortion, though it continues to persist and to multiply in their udders; sufficient general immunity not being produced to drive it from this stronghold. Has the abortion bacillus, present in the udders of these cows, induced immunity in their uteri which it failed to do in cows 637 and 621, or must we regard these organs as naturally immune in these cows, or is there some other reason?

Mohler and Traum (3), Larson (4) and others have shown that some cows react to the complement fixation test, but do not abort. No doubt many such are of the kind just described, and that the reaction depends on the actual presence of the abortion bacillus. In other words, a cow reacting to this test probably has the organism either in her udder or uterus.

This type of carrier is a dangerous one, because unsuspected, and can only be found by making milk tests, or one of the serologic tests. Some simple reliable test is urgently needed, and it is to be hoped that such a one will be perfected in the near future.

Nine other cows which have aborted in from the fifth to the eight month of their pregnancies, have already been eliminating the abortion bacillus, some continuously, some intermittently, for periods varying from two and one-half to twenty-nine months, and if kept under observation longer, I have no doubt will continue to do so for months and years to come, for in none of them is there evidence of the infection dying out.

One cow, No. 758, that aborted a fetus in which the abortion bacillus was demonstrated, has given negative results to all milk tests thus far made. She is certainly the exception that proves the rule. Her abortion occurred in the seventh month of her second pregnancy. It is possible that even in this cow more frequent tests would have revealed the bacillus in her milk, for we have one other cow the milk of which shows infection only at long intervals.

Summary.

Of the nineteen cows under discussion, eighteen have eliminated the abortion bacillus with their milk, sixteen are known to have aborted, three have not aborted but eliminated the bacillus with their milk, and one aborted, but we were unable to find that her milk was infected through abortion bacilli were found in the fetus.

One cow is known to have been eliminating the bacillus with her milk practically continuously for four years and three months. One almost continuously for two years and five months, and the organism must have persisted in her body for at least four years and seven months; one almost continuously for thirteen and one-half months; one continuously for fifteen months; one intermittently for eleven months; one almost continuously for eleven months; one continuously for six and one-half months, then she became dry, and the bacillus was still present in her udder tissue thirteen and one-half months later; one intermittently for over two years; one almost continuously for over three years and four months, and nine continuously or intermittently for from two and one-half to twenty-nine months.

Since different strains of this organism seem to possess widely different cultural characteristics as well as degrees of virulence, it is possible that animals infected with other strains than those with which we have worked may give different results. Fabyan (5), however, found out of a herd of twelve cows two which eliminated the organism in their milk. One of these had aborted a week before in the eighth month of pregnancy and the other gave birth to a normal calf eleven months before. Another cow aborting at the third month was negative. These results are confirmatory of our observations.

Persistence in Small Experiment Animals.

Just a word as to the persistence of the organism in the tissues of guinea-pigs, rabbits and mice. We have recovered the bacillus from the spleens of guinea-pigs showing lesions, seventy-one and seventy-seven weeks after infection. Tests made of five other guinea-pigs which had been injected with the abortion bacillus twenty-one to twenty-seven months previously, and which showed only very slight lesions on autopsy, were negative.

The apparently normal spleen and liver of a rabbit, which had received three intravenous injections of abortion bacilli, were found to contain the organism 131 days, or nearly nineteen weeks after the last injection was made. The organism was found to be present in the spleeen of three white mice, in which it produced lesions 103 days, or fifteen weeks after inoculation.

Fabyan (6) reports finding the organism to be present for sixty-seven weeks in guinea-pigs, ten weeks in the spleen of a rabbit, and for considerable periods in the tissues of monkeys, rats, mice, and pigeons after injection with abortion bacilli; though with the exception of the guinea-pigs and mice without producing lesions.

Conclusions.

1. The bacillus of infectious abortion, or at least the strains with which the Experiment Station has worked, may, and in most cases does, persist in the udders of cows that have aborted for years and possibly for the balance of their lives; and during this time is eliminated more or less continuously with their milk.

2. It may make its appearance in the milk months before abortion occurs, even before a conception that is terminated by an abortion.

3. It may be eliminated for years from the udders of cows that never aborted.

4. It may persist in the genital tract for as much as forty-six days after an abortion; and the bacilli contained in uterine discharge may resist the action of sun and weather for at least ten days.

5. It may appear in the placenta of a normal pregnancy subsequent to abortion.

6. It may persist in the spleens of inoculated guinea-pigs in which there are lesions for seventy-seven weeks, and in the spleens of inoculated rabbits for nineteen weeks, without producing lesions.

It is to be hoped that we will soon know more about this strange organism. Its variable character and the seeming existence of many strains, no doubt, are responsible for much of the confusion in the past, and the fact that it seems to prefer primitive embryonic tissue as a soil, suggests that it may be an organism not yet fully adapted to differentiated tissue, and ready, by a process of mutation, to assume additional pathogenic significance in several species of animals. In other words it may be the possible parent germ of some future pathological factor.

References.

1. Schroeder and Cotton, Proceedings of American V.M.A 1911, p. 442. See also *American Veterinary Review*, Nov. 11, 1911, pp. 195—206, and Twenty-eighth Annual Report of the U.S. Bureau of Animal Industry, 1911, pp. 139—146.
2. M'Fadyean and Stockman. Report of British Committee on Epizootic Abortion, 1909, Appendix K, p. 40.
3. Mohler and Traum, Twenty-eighth Annual Report, Bureau of Animal Industry, p. 174.
4. Larson, W. P., *Journal of Infectious Diseases*, March 1912, p. 184.
5. Fabyan. Marshall, *Journal of Medical Research*, May, 1913, p. 88.
6. Fabyan, Marshall, *Journal of Medical Research*, May, 1913, p. 82.

American Veterinary Review.

YORKSHIRE VETERINARY MEDICAL SOCIETY.

[National V.M.A. Northern Branch.]

A meeting was held at the Hotel Metropole, Leeds, Oct. 31.

The Secretary (Mr. J. Clarkson) before the business of the meeting commenced, read a letter from Mr. J. Abson, of Sheffield, President of the Society, explaining that owing to ill-health he was unable to attend the meeting. In the absence of Mr. Abson he would call on the senior vice-president to occupy the chair for the time being.

Mr. McCarmick, who then took the chair, said they would all be sorry to hear that Mr. Abson was unable to be present that day, and he hoped he would soon be convalescent.

On the motion of Mr. J. McKinna (Huddersfield) it was decided to send a letter to the President expressing the deep sympathy of the Society with him in his illness, and hoping that he would have a speedy recovery.

The late William Hunting, F.R.C.V.S.

Mr. McKinna: I am sure I shall be echoing everyone's feelings to-day when I rise to speak with reference to our late lamented friend, Mr. Hunting. I only heard of his death to-day, and I did so with deep feelings of regret. We have lost a leading light in the profession, one of our brilliant stars, looked up to and held in the highest esteem even by those who many times were in opposition to him. He was loved by the whole profession, and before starting our meeting to-day I think we might express our deepest sympathy with his family

in the great loss they have sustained, and the profession as well.

Mr. CLARKSON: I would like to second this vote of condolence. Mr. Hunting always had the Society very closely in his heart, he has always been very much attached to it, and I think we can say that we always had very great pleasure in receiving him. He has been one of our Honorary Associates for a very long time. At the time of his death the officers of the Society sent a wreath, but I shall be glad as Secretary to forward any letter you may direct.

Mr. MCCARMICK: It has been moved and seconded that a letter of condolence be sent to the relatives of Mr. Hunting, and I ask you to show your sympathy in the usual manner by standing. The resolution was adopted.

Minutes. Mr. Clarkson read the minutes of the last meeting.

Correspondence. Mr. CLARKSON said he had no official correspondence to read, but he would like to send a letter of thanks to Mr. Pratt. Quite recently, in addition to his original gift, Mr. Pratt had made the Society a gift of a number of books. There were a good many books which were very valuable, and as this was in addition to the collection of shoes and pathological specimens, it came extremely nicely from Mr. Pratt.

Mr. MCCARMICK: I am sure we all appreciate Mr. Pratt's kindness to the Society. I think the least we can do is to send him a letter of thanks.

It was intimated that Mr. Pratt was at that moment lying seriously ill.

Mr. F. SOMERS (Leeds) proposed a vote of thanks to Mr. Pratt, who, he said, had been a most generous, and chivalrous donor to the Society.

Mr. MCKINNA, who seconded, said Mr. Pratt gave the gifts very graciously. Their sympathies would go out to him in his illness.

Mr. CLARKSON: I would suggest that we include in the letter a vote of sympathy with Mr. Pratt in his illness. He is the only foundation member of this Society now remaining. Although other men have perhaps got the credit for it, I believe that Mr. Pratt really thought out the formation of this Yorkshire Society. This is the first meeting the Society has ever held since I became Secretary that Mr. Pratt has not been able to attend or has written, and I presume from that that he is still very ill.

The Secretary was instructed to write to Mr. Pratt in accordance with the wishes of the meeting, and Mr. McCarmick then presented the balance sheet, which showed a balance in the bank of £29 14s. 6d.

On the motion of Mr. McKinna, seconded by Mr. S. Wharam, the balance sheet was adopted.

ELECTION OF OFFICERS.

Mr. W. CRAWFORD: In the absence of our President, I may be allowed to say what a good president he has been during the year. Those who were at Sheffield will remember the manner in which we were treated, and appreciate it Next year will be a very big one, with the International Congress, and we do want a man to represent us this time. I have great pleasure in proposing that he be re-elected for another year.

Mr. J. H. GILLESPIE seconded.

Mr. MCCARMICK: I have very great pleasure in rising to support that resolution. He has been an admirable President, and he has satisfied the Society in every way. [Carried].

Mr. MASON proposed that Mr. G. E. BOWMAN be elected the Senior Vice-President, and Mr. W. P. WESTON and Mr. S. E. SAMPSON as Vice-Presidents.

Mr. M. ROBINSON seconded, and the motion was adopted.

In the absence of the newly-elected senior Vice-President the chair was then taken by Mr. S. E. Sampson.

Messrs. MCCARMICK (Hon. Treasurer), J. CLARKSON (Hon. Sec.), A. W. MASON and W. CRAWFORD (Auditors) and the same members of Council as before were re-elected.

New Members. The following nominations of new members were received: Messrs. VINE, Settle; THEXTON, Pontefract; and NICHOLSON, Bridlington.

Mr. CLARKSON: During the coming year Mr. Mason comes off the Council R.C.V.S. He has been a member for nearly a quarter of a century, and the Council thought that if he would consent to stand again, the Society ought to ask him to be their official nominee. I have great pleasure in nominating him.

Mr. WHARAM: I have great pleasure in seconding that Mr. Mason's work on the Council is well known, and as regards the representation of the Society, I don't think we can have a better man.

The motion was adopted, and Mr. Mason in thanking the meeting said: I thank you very much for the compliment and honour you have paid me in making me your official nominee for the Council. You know I have been your representative for a number of years, and my past services must certainly have been appreciated or you would not have nominated me to-day. For the last two years I have not perhaps been such a good attender at the Council meetings as I used to be in former days, but I do endeavour to attend these meetings if there is anything important going on. There are important questions before us at the present moment, and when there is anything particular on I will attend. Thank you very much for the compliment.

It was decided to amalgamate with the usual Societies for election purposes.

Mr. MCCARMICK said it seemed that one member gave it as his excuse for non-attendance that the meeting was always held on a Friday. He begged to propose that the Council take into consideration the advisability of altering the day of the meeting from a Friday to a Thursday.

Mr. MCKINNA said the members present might express an opinion as to what date was most suitable for them.

Mr. SAMPSON thought they might take a poll by a show of hands, and this resulted as follows: Friday 11, Thursday 7, Monday 1.

QUITTOR.

Prof. A. GOFTON, F.R.C.V.S., Royal (Dick) College.

I would feel that some apology was necessary for introducing such a time worn subject as quittor if it were not for the fact that in so doing I am acting on the suggestion and invitation of your President.

Unanimity of opinion does not exist in regard to the use of the term quittor, in respect of the causes and methods of origin of the conditions to which it is applied, or in regard to the most appropriate line of treatment. For these reasons, and also because its treatment calls for considerable work with not infrequently disappointing results, quittor remains a subject of perennial interest. I have no new facts to place before you, I merely submit my views for your consideration and criticism. I purpose limiting my remarks to the definition of the condition, and to its method of origin.

A system of nomenclature which permits of the application of one name to two or more essentially different conditions calls for unqualified condemnation. The term quittor is deprived of any real meaning or significance if it is used without limitations, or to put it in

other words, if it is applied to several conditions presenting similar symptoms but differing essentially in cause and nature. One cannot, therefore, emphasise too strongly the desirability of attaching a definite meaning to the term.

One cannot, with any confidence, claim general agreement on more than two points in regard to what constitutes a quittor—a suppurating wound usually in the form of a sinus, and chronicity. In respect of location, there is fairly general agreement, but one feels that even here one is not on too sure ground. It is usual to describe a quittor as associated with a wound on the coronet, but that is not sufficient, because, as I hope to be able to show presently, a condition essentially the same as that which is associated with the chronic suppurating sinus in the region of the coronet may exist in the absence of a wound in that position. For this reason I prefer to describe a quittor as located within the region of the lateral cartilage. By some the term quittor is also applied to chronic suppurating wounds located on the coronet, but which are out with the region of the cartilage. In my experience it is not usual to apply the term to such conditions, since they are generally without material difficulty recognisable as dependant on conditions essentially different from those associated with the wound located in the region of the cartilage. But if it be assumed that such use of the term is common, it must be admitted that the great majority, probably not less than 90 per cent. of the chronic suppurating wounds located on the coronet and to which the term quittor is applied, are situated within the region of the cartilage.

These features are merely symptoms, and give no indication of the real nature of the conditions to which the term is applied. Careful systematic examination and investigation of all chronic suppurating wounds located in the region of the lateral cartilage of the foot will show that probably 100 per cent., certainly not less than 95 per cent. are dependant on necrosis of a portion of the lateral cartilage. This is a distinct condition, and merits the application of a term the use of which will clearly and unmistakeably indicate its occurrence. If the term quittor is to remain in general use and is to possess any real significance, I would urge the adoption of the suggestion made recently by the late Mr. Hunting, that the name be applied to this condition and no other. Difficulties in the way of differential diagnosis may be urged against this restricted use of the term. But difficulties in diagnosis do not justify disregard of attempts to attain scientific exactness, or simplicity and clearness of nomenclature. Further, the difficulties which are encountered are seldom insuperable, and the cases in which the existence, or otherwise, of necrotic cartilage cannot be established by means available to every clinician constitute a very small proportion of the whole.

On the basis that quittor is to be regarded as a chronic suppurating wound dependant on necrosis of a portion of the lateral cartilage of the foot, the causes on which it depends, and the manner in which the necrosis is produced, may be considered.

Cartilage has a very limited blood supply, its vitality is low, and it appears to be very susceptible to injury. Its reparative powers rank amongst the lowest of the various body tissues, and once injured, necrosis appears to follow more readily than recovery. In the great majority of cases quittor is secondary to some septic process within the hoof, in the course of which the septic material is brought into intimate contact with the lateral cartilage, producing serious injury to, and necrosis of, a portion of it. It is well recognised that the primary injury responsible for the sepsis may be inflicted to the coronet or to the ground surface of the foot in the region of the heel. The injuries in the latter position are responsible for the majority of quittors. Pus is formed beneath the horn at the heel. It is not liberated until the pus has commenced to separate the horn from the corresponding sensitive structures. It travels in the direction of least resistance, which naturally varies according to its primary location. It may be the sole, or the bar, or both, which are principally under-run. It is then extremely rare for a quittor to result. When the horny and sensitive laminæ are separated, quittor is almost inevitable unless prompt and efficient measures of relief are taken. In a very short time pus will be discharged between the horn and the skin at the coronet, and its escape will relieve in some measure the pain of the condition. But the relief is only temporary. The symptoms recur with the formation of a second abscess above the original point of discharge. This abscess breaks through the skin, leaving the discharging sinus, which is the external evidence of the establishment of a quittor.

Once infection has penetrated up the wall beyond a certain point, especially when the location of the primary infection is within the region of the wing of the pedal bone, the removal of the horn from the ground surface of the foot will rarely permit the escape of the whole of the pus, or succeed in preventing its appearance at the coronet, and the formation of the secondary abscess. The anatomical arrangement of the parts makes its escape by the lower opening almost impossible unless the separated wall is completely removed.

The first necrotic areas of cartilage found in quittors which arise in this way are invariably situated along the union of the cartilage with the wing of the os pedis, and on the outer or superficial surface of the cartilage. If transverse sections of the foot be examined, it will be found that this is the only position between the ground surface of the foot and the coronet, in which pus has an opportunity of lodging. In this position a certain amount of connective tissue is interposed between the laminæ on the one side, and the bone and cartilage on the other. Below this point the horny and sensitive laminæ only are interposed between the bone and the horn of the wall—both unyielding structures. Above it the cartilage and the horn are equally closely approximated. Considerable resistance, therefore, exists to the passage of pus either in an upward or in a downward direction from this position, hence its tendency to accumulate. The proof that it does lodge and is retained in this position, can be obtained by any one who takes the trouble to remove the separated wall shortly before or after pus has appeared at the coronet between the skin and the horn. The result of its retention is necrosis of soft tissue and then of cartilage, changes which are not long delayed. The secondary abscess, which is the first external evidence of these necrotic changes, is formed by the further penetration of the pus in an upward direction between the coronary band and the lateral cartilage, and its accumulation in the subcutaneous tissues.

The extreme angle of the heel, where the horn of the wall is reflected to form the bar, is another position in which quittor frequently takes its origin. Here the changes are similar, but the course and symptoms are somewhat modified. If transverse sections of the foot be examined in this position the sensitive laminæ alone are found interposed between the cartilage and the horn. When infection of the soft tissues occurs, pus penetrating between the sensitive laminæ is brought into immediate relationship with the cartilage with results equally as damaging as in the former case, but which probably occur at an earlier period. As a consequence, quittor is an almost inevitable result of infection of the soft parts unless immediate steps are taken to release pus when it forms in this situation. If no exit for the pus is provided on the ground surface of the foot, the usual abscess appears on the coronet and the case follows the usual lines. If an opening be made at

the angle of the heel at a slightly earlier period of the case, the pus escapes, but a sinus will remain. There is, however, no lodgment of pus between the ground surface of the foot and the coronet. The insertion of a probe into the sinus will demonstrate at once that the cartilage is exposed, and if further proof that necrotic changes have taken place be required, it is furnished by the failure of the ordinary simple measures to arrest the continued discharge. Provided this lower opening is kept patent, a considerable period—it may be as long as two months—may elapse before any abscess or sinus appears on the skin above the coronet. The condition present is essentially the same as quittor with a wound on the coronet. Sooner or later, as the result of obstruction to the free escape of discharge from the lower opening or of extension of necrosis of cartilage, a secondary abscess forms on the coronet and the usual symptoms of quittor are presented.

In the case of injuries to the coronet the process is not difficult to follow. The tread or other injury may by its direct effects produce necrosis involving cartilage as well as soft tissues, or, indirectly, the same changes may take place in consequence of bacterial infection. In either case a wound or sinus is established, associated with more or less extensive necrosis of cartilage. In quittors arising from coronet injury it is not infrequent to find the necrotic process confined to the inner or deep face of the cartilage. The position of the primary injury affords the explanation of this in most cases. Given a deep-seated abscess on the coronet extending down on to the inner side of the cartilage, the facility with which pus may penetrate along the deep face of the cartilage is easily appreciated on an examination of the extremely loose connective tissue which lies between it and the firmer structures which form the great mass of material interposed between the inner and outer cartilages of the foot at the heel. It is a matter of common observation in these cases that the necrotic cartilage is usually situated at the union of cartilage and bone, and it is in this position that the anatomical arrangement of the parts is responsible for a check in the downward progress of the pus. There is thus the closest similarity in the progress of events which result in necrosis of cartilage, no matter in what position the necrotic area of cartilage is situated.

The chronicity of quittor is attributable to the slowness and difficulty with which necrotic cartilage is eliminated. Necrotic tissue always provokes a reaction in the immediately adjacent living tissues. In the case of cartilage this reaction appears to be at a minimum, and the separation of the dead from the living is effected with great slowness. Once the process of separation is complete the elimination of the dead material is frequently impossible, owing to the smallness of the aperture by which alone escape is possible. Evidence of this is commonly obtained in the operative treatment of old standing quittors by the discovery of necrotic cartilage completely detached, and more or less embedded in granulation tissue. Such necrotic areas of cartilage are constantly bathed in pus, and their septic condition is an important factor in the perpetuation and extension of the morbid process.

At the conclusion of his address, Prof. Gofton gave a demonstration by performing the radical operation on a horse's fore foot. Specimens were also displayed to the members.

Discussion.

Mr. Sampson said they had all been very interested to hear Prof. Gofton and see his able demonstration on the foot. Prof. Gofton would be very pleased to answer any enquiries or suggestions that might be made.

Mr. Bowes: I am sure we are all very much obliged to Prof. Gofton for coming down from Edinburgh and giving us this interesting paper and a description of the operation. As Prof. Gofton says, there are quittors *and* quittors, and a good many of the cases we call quittor that recover comparatively easily are not quittor cases. So far as a real bad quittor is concerned, my experience of late years, since I am not quite so active as I used to be, has not been very successful. In the old days I have seen what seemed to be very radical operations, but they were not done with the accuracy that Prof. Gofton has shown. The milder cases I have found to recover after injections. I want to refer to the treatment which has become more common recently—the injection of vaccines. I have used anti-suppurine, which consisted of mixed cultures of the organisms generally present in such conditions. During the past few years I have used a good deal of anti-suppurine, and the majority of the cases have done extremely well. The only other treatment necessary is cleanliness of the part, but many of the cases had been on farms where cleanliness had not been observed. I should be glad to hear from Prof. Gofton if he has had experience in the use of vaccines. If a fair percentage of recoveries could be got by that treatment alone he personally would undertake it rather than the operation.

Mr. McKinna said he was very interested in what Mr. Bowes had said, and he was also interested to know whether any other member had tried the treatment by injections of anti-suppurine. He had been wonderfully successful in the treatment of quittor by treating symptoms, as it might be said. He had used perchloride of mercury, not to act as a caustic, but as a powerful antiseptic. He had never been much encouraged to employ the radical operation. Each man has to use his own peculiar treatment in cases that arise, but he had not done that particular operation, which was most interesting to him. They had always to consider the matter from the standpoint of "Would it pay?" and they had to look at things from the commercial standpoint, and not from the surgical point of view in which they would be so much interested.

Another member asked if Professor Gofton could explain how one very often got permanent lameness after operation in the fore foot, but not in the hind.

Mr. Crawford said he had been very interested to see the operation done. The point was, how long was it going to take afterwards for the filling up of the hole that was left. Getting back to work was what they had to consider. Like Mr. Bowes, he was a great believer in anti-suppurine.

Prof. Gofton: Six to eight weeks.

Mr. A. Ellison thanked Prof. Gofton for his extremely interesting paper. Some years ago he got a number of cases of quittor. He used to find by the probe what portion of the cartilage was diseased, and then endeavour to make an ordinary wound of it, and remove any portion of cartilage found to be diseased. He had seen an animal go back to work again sometimes in three weeks or a month.

Mr. T. C. Fletcher said he thought that Professor Gofton's radical operation was one for which many of them had not the time or patience. He had been careful in watching the operation as performed by Prof. Gofton, and he must say that before he attempted it on a living foot he would try all the means possible, including anti-suppurine. He was sure they were all extremely obliged to Prof. Gofton for his illustration of the mode of operating.

Mr. W. Ackroyd said he had to thank Professor Gofton for his demonstration. He would like to have some idea of the treatment of quittor at varying stages. He took it that the radical operation which so many shied at was for a chronic case, which had not yielded to other methods, and he would have liked to have heard something as to other methods. There was one hopeful point about Prof. Gofton's observations, and

that was that one need not remove the whole of the cartilage. As other speakers had remarked, it was not a question of surgery, it was a question of what one could do economically for one's client. It would be interesting to know what number of horses failed to go sound after a radical operation.

Mr. SAMPSON said it would be interesting to know how long Prof. Gofton advised leaving an ordinary case of supposed quittor before attempting a radical operation. That was, assuming that quittor had been treated for one, two, or three months, what was the earliest time the Professor would advise a radical operation. Personally, he would be one of the shy brigade. He had seen operations performed, but lameness followed.

REPLY.

Prof. GOFTON discussed the partial operation as compared with the radical operation. Personally, he preferred, as far as it was possible, the partial operation. His experience of the radical operation was that sometimes, though not always—not in the greater percentage of cases—one got a lameness which was permanent. He, therefore, preferred to do the partial operation as far as it was possible, and if one could trace and discover localised areas of cartilage, in the great majority of cases if the necrotic cartilage was removed with a minimum of injury to the remaining healthy cartilage, a satisfactory recovery was secured in about half the time required for a radical operation. The cases for radical operation were those which were old standing, where one found the necrosis had extended well forward. In these old standing cases, which had been going on indefinitely, it was not much use attempting anything but the radical operation since such cases almost invariably presented several areas of necrotic cartilage connected with each other by sinuses which were frequently difficult to trace.

With regard to the question of lameness, it was admitted that in a certain proportion of cases permanent lameness did follow the radical operation. The question had been asked—What was the cartilage replaced by? It was obviously replaced by the reproduction of the surrounding parts, that was to say, fibrous tissue. It had been suggested that the lameness was due to the newly formed fibrous tissue being less yielding, but as a matter of fact fibrous tissue was more yielding than cartilage. So far as his experience went, it had led him to the conclusion that it was the injury to the ligament which was responsible for the lameness, since lameness only followed when operative interference was carried into the region of the ligament of the joint.

Mention had been made of the open joints. This was always a possible accident of the radical operation, but the great point was to recognise when the joint was opened, and then take adequate steps to prevent serious trouble following. The accident did not necessarily make the case hopeless. Sepsis and rough handling of the cartilage, involving fresh injury to it, were two main explanations of failures of the partial operation.

The economical side of the operation had to be taken into consideration, but situated as he was, he was only too glad to be able to secure cases to operate upon for demonstration purposes, independently of the economical side. The private practitioner could not, of course, accept cases on those lines.

He could not say anything as to the value of anti-suppurine in the treatment of the disease. Unless one made one's own vaccine from the patient, it was just a chance whether one got the right organisms or not. If he were going to use a vaccine he would prefer to make it from the patient. One of two things was necessary to bring about a cure in quittor, the elemination of the cartilage which was diseased, or the rendering of it aseptic so that the tissues could grow round it. He did not know whether the latter ever occurred, but theoretically it seemed possible. With anti-suppurine one might conceivably destroy the infection and thus permit of healing and recovery.

On the motion of Mr. Bowes, seconded by Mr. Fletcher, Professor Gofton was cordially thanked for his address, and a vote of thanks to Mr. Sampson for presiding concluded the meeting.

J. CLARKSON, Hon. Sec.

WESTERN COUNTIES VETERINARY MEDICAL ASSOCIATION.

[NATIONAL V.M.A. SOUTHERN BRANCH.]

The 71st general meeting was held at the Great Western Hotel, Taunton, on Thursday, November 27, when the President, Mr. C. E. Perry, of Bristol, occupied the chair, other members present included Messrs. P. G. Bond, Plymouth; E. W. Bovett, Bridgwater; A. J. Down, Sampford Peverell; R. E. L. Penhale, Torrington; Wm. Roach, Exeter; and H. E. Whitemore, Langport.

The minutes of the last meeting were read and confirmed.

Apologies for non-attendance were read from Prof. Hobday, Messrs. Wm. Ascott, W. H. Bloye, John Dunstan, G. H. Gibbings, Wm. Penhale, W. H. Richardson, A. G. Saunders, G. Parker Short, and W. P. Stableforth.

Condolence. Mrs. Elder wrote thanking the members for their expression of sympathy on the death of Mr. G. H. Elder.

Since the last meeting the death had occurred of Mr. Thos. Olver, of Truro. Mr. Olver was one of the founders of this Association, and always took a keen interest in its welfare. The Hon. Sec. was requested to convey a vote of condolence to his relatives.

The HON. SEC. was directed to convey to Mr. G. Parker Short, of Torquay, who is suffering from a long and severe illness, a message of sympathy and hopes for his speedy and complete restoration.

New Member. Mr. A. HART, of Honiton, was unanimously elected a member of the Association.

TENTH INTERNATIONAL VETERINARY CONGRESS.

A letter from Mr. Garnett as to payment of subscriptions was referred to the Hon. Treasurer to deal with.

PRESIDENTIAL ADDRESS.

Mr. C. E. PERRY, Bristol.

Gentlemen,—I must first of all thank you for electing me President of your Association for the year, and I must say I very much appreciate the honour you have conferred upon me. I appreciate it for more reasons than one; when I first came to your meetings, some fifteen years ago, I felt quite at home at once, although I did not personally know any of the members present. There is always that feeling of good fellowship at all your meetings which I cannot express in words. I have attended meetings of other veterinary associations, and I am convinced there is not the good feeling existing towards one another that we have in this Western Counties Association. I never remember attending a meeting of this Association but I have gained some knowledge, and my regret is that I cannot attend more meetings than I do, owing to places of meetings being too far from me.

It is usual for the President to say something about the veterinary profession at the time present. The most important matter now before the profession is the Veterinary Surgeons Act Amendment Bill now before

Parliament, and I think we all hope that it will soon become law. It is absolutely necessary to put the Royal College of Veterinary Surgeons' financial position on a sound basis, and no doubt the Bill will do so. I hope that one of the first things done by the Council when they are in a financial position to do so, will be to give the Registration Committee more power to put down quackery and patent medicines. Money is wanted to carry out the work, and at present the Committee are very much hampered for the want of funds. I hope the Council will study the wants of the general practitioner before they start rebuilding the Royal College of Veterinary Surgeons on a better site, as has been suggested, or enlarging the museum and library. These improvements we would all welcome, but there are many other more pressing needs that require attention first.

Next year an International Veterinary Congress will be held in London. Some £4000 are required to finance the Congress, and I think it is the duty of every veterinary surgeon in the country to contribute to the funds. Our Treasurer has given us a good lead by subscribing one hundred guineas; we, as an Association, have also subscribed, but we all individually ought to subscribe what we can afford.

This Veterinary Congress ought, and I think will, bring home to the general public the important position the veterinary surgeon ought to occupy in the country. What are the prospects of the veterinary surgeon; how do we stand to-day as a profession? Some people say the day of the horse is going, that very shortly there will be no horses to treat, and that we as a profession must go too. That, I think, is certainly wrong. No doubt motor traction has come to stay; horses are being replaced daily by motor for carriage work, and for general hauling. Some veterinary surgeons, particularly town men, have, and will suffer, but it is my candid opinion that the horse will always be wanted in this country. Hunters are more valuable than ever, the Army horse is a necessity, and farm horses are required on the land; in fact horses of all descriptions are more valuable to-day than I ever remember.

Cattle practice is on the increase, becoming more scientific and more remunerative. To-day there is more demand for milk than ever there has been, and in future milk will be one of the principal articles of diet. I think there is a great future for cattle practice.

Some years ago many veterinary surgeons would not condescend to undertake the treatment of dogs; but to-day it is one of the most lucrative branches of the profession, and is certainly very much on the increase. Personally, being veterinary surgeon to several dog shows and clubs, I am brought into contact with owners of dogs, and dog practice is a very important part of my every-day work.

Then, again, recent legislation has made more work for the veterinary surgeon. The Coal Mines Act, making it compulsory to have every horse malleined before being put underground, and providing for better veterinary treatment for horses when underground, has certainly brought grist to the mill for many like myself who attend colliery horses and go underground.

The Tuberculosis Order has made work for veterinary inspectors and will make a lot of extra work when the Milk and Dairies Bill is passed into law, making compulsory periodical inspection of all dairy cattle.

Apart from general practice the public are rapidly realising the need for proper control of the milk and flesh food supply, and who is more fit to do that duty than the veterinary surgeon? Further, public health legislation is certain to bring more work to us as a profession.

I should like you to think how our daily work has changed since I was a pupil twenty years ago. Then tuberculin and mallein were not in daily use, there was no preventive vaccine for quarter-evil, no preventive vaccine for distemper, no anti-suppurine, streptococcine, etc. We had no curative injection for milk fever. Think what these new treatments and diagnostic agents bring us in as a profession.

I think, gentlemen, from the remarks I have made we may conclude that although our outlook is perhaps not so good as it was some years ago, yet it is not so bad as we are sometimes apt to think it is, and although our work has changed and in some way diminished, we must be thankful that it has increased and we trust it will still continue to increase in many other ways. Gentlemen, I thank you.

On the motion of Mr. Whitemore, seconded by Mr. Bovett, the President was thanked for his address.

Clinical Cases.

Mr. Bovett exhibited two photographs of a twelve-year-old mare on which he reported.

On May 31st, 1912, I examined an ordinary farm bay mare with some skin affection which covered the whole of her body, the eruption seemed to come in crops, as some of the nodules could only be felt under the skin; others could be clearly seen resembling urticaria; others were rubbed blood red, and some were drying and healing under a scab. I had her dressed all over with the following lotion: Ol. tereb Oj., Ol. picis Oj., Whale Oil Oij., Sulph. sub. lb ij., this was well rubbed in with a scrubbing brush from the tip of her nose to the tip of her tail and all four legs, and gave powders of As. gr. x, with Ferri sulph., in the feed twice daily, the mare could not be worked, so the lotion was allowed to remain on, or rubbed off at grass. She was dressed over with this lotion four times, and continued the powders until the beginning of August, when I wrote my late friend the late Mr. Elder, and he suggested trying Pot. iodide. This I did for some time, but with negative results. I then wrote Prof. M'Fadyean, and he being away his assistant advised cod liver oil internally, suggesting it was due to malnutrition of some of the internal organs. This I did for some weeks, and also dressed her all over with cod liver oil several times, but with negative results. Early this month I received a message saying owner would not have anything else done to her, as she continually went down as if in pain, so I went and saw her and after having a couple of photos taken of her, had her destroyed, and made a post-mortem examination.

All the internal organs were healthy with the exception of the accessory lobe of the right lung, which was full of rounded tumours of the size of from a 5/- piece to 4 or 5in. in diameter and somewhat flattened, and when cut into looked to the naked eye like the ray fungus of actinomyces looks under the microscope, or like a number of true ticks crowded together. The skin lesions did not go through the skin, the inside being quite mooth. Below each pin, underneath her arms and around her tail and behind her withers on either side were large tumours which resembled ordinary muscle when cut into, but quite bloodless, in fact they were yellow instead of pink. I sent on these parts to Prof. M'Fadyean and received his reply, which I have here. The mare was in very good condition when I saw her first, and you will see from the photos she had not lost condition in spite of the terrible irritation she was in for so long.

"Dear Mr. Bovett,

I duly received your letter of the 4th inst., and the specimens from the horse. Although we have devoted a good deal of time to microscopic examination of the parts, including skin, lung, and tumour, I am sorry to say that we have not been able to determine with certainty what was the cause of the mischief. The

lesions are very peculiar in character, and I do not think I have ever seen anything exactly the same before. I am quite satisfied that they have been caused either by bacteria or by some animal parasite, but we have not been able to identify any parasite in them. Can you tell me whether the mare had ever been out of England or not, and whether there was an opportunity for the disease to spread to other horses while she has been ill.—Yours faithfully,

J. M'FADYEAN.

Nov. 8th, 1912."

In reply to the points raised in Sir John M'Fadyean's letter I may say that the mare was bred in this district and had always been worked on the farm. There was no sign of the disease in any of the horses or other animals she came in contact with.

EPIZOOTIC ABORTION.

The PRESIDENT (Mr. Perry) : I have the care of a herd of 21 Jersey cows, and for two or three years have experienced considerable trouble from abortion. Recently three aborted in quick succession. I then took samples of blood from the remaining eighteen, and sent to the Royal College for testing, with the result that four more were certified as affected. The owner declared that this could not be so, but about three weeks before due to calve, three more aborted. I do not believe in the idea of "feeding off," and the affected cows are isolated and a separate bull kept for them

Mr. PENHALE : In several cases of cows aborting within three weeks of the time due to calve, I have given it as premature birth, although the Royal College has said it is epizootic abortion. One of the best places to look for the bacillus is in the stomach of the calf. I certainly think that "feeding off" is not to be advised

STRANGULATION.

Mr. BOND : I have recently come across three interesting cases in polo ponies. One of these was at a local show ; the pony was shown from about 2 to 3 o'clock, and while in the ring was ridden by a heavy gentleman acting as judge. Shortly afterwards it was taken as if suffering from severe colic pains. A drench was given, but the animal gradually got worse, and was shot about 12 o'clock the same night. A post-mortem examination revealed a pedicle of fat about the size of a duck's egg, hanging down in the form of a string from the mesentery, and this had become twisted several times around the small intestine, causing strangulation. The other two cases were very similar.

Mr. PERRY : I was recently called to a case of colic, not a severe attack, but the animal had intermittent attacks lasting for about 10 minutes or so at a time. During the first day the horse had a drink or two of water and also passed manure and urine, but died in about 40 hours. On making a post-mortem examination I found the cæcum inverted into the large colon.

Mr. WHITEMORE . A short while ago I had a case where a horse gave more than the usual indication of the seat of the trouble. The first day the symptoms were of colic. The second day the patient repeatedly kept poking his nose into his flank, and suspecting inguinal hernia, I made several examinations, per rectum, without success, and on the third day he died. A post-mortem revealed a twist of the small intestine.

Mr. DOWN : I recently attended at a farm for the purpose of castrating two colts, and in the course of preparing for the operation I noticed that one of them appeared unwell, and on closer examination found it was suffering from tetanus. I made an injection, and of course declined to castrate. These colts had been brought home from an off-farm two days previously, where a cow had been killed by lightning. The farmer said to me "Has the colt been struck by lightning?" and I said I thought not. On the 3rd day the colt died, and the same man that skinned the cow was employed to skin him. The owner persisted in making a claim on the insurance company, and in the ordinary way I was asked to give a certificate ; this I did, certifying that the colt died from tetanus, but could not say it was caused by lightning.

WM. ASCOTT, Hon. Sec.

ANNUAL REPORT OF THE CIVIL VETERINARY DEPARTMENT PUNJAB.—By Lieut.-Col. J. FARMER, Chief Superintendent. [ABSTRACT.]

(Concluded from p. 366.)

BREEDING OPERATIONS.

Ninety-one bulls were supplied from the Hissar Cattle Farm on indent from 16 district boards and 13 were purchased locally. At the end of the year under report there were 544 bulls.

The system of supplying bulls is satisfactory. Some of the district boards purchase bulls for Rs. 200 and sell to responsible men for half the price. This is a very good method, but a sufficient number of men do not come forward to purchase. The most satisfactory method would be for the agricultural banks to purchase; this would place the responsibility of looking after the bull upon more people, because a larger number would have a share in the bulls The Chief Superintendent has consulted Mr. Langley, Registrar of the Co-operative Credit Societies, who has very kindly helped him, and the Inspectors of the Banks have been consulted in the districts.

Cattle-breeding will always be handicapped until the letting loose of brahmini bulls is put an end to, or it be arranged for the pious hindus to consult the department before letting a bull loose. The present pious man cannot and does not wish to pay the price of a good animal, as prices have so greatly increased in the last few years. The department has carefully considered religious sentiment in this matter. The best way to deal with these useless animals would be to issue orders that all inferior brahmini bulls should be reclaimed by their original owners. If the animal is not claimed, it can be either sent to a goushala, if so desired, or castrated and sold by auction, and the money credited to the district board to go towards the purchase of a good bull.

Pious hindus in the future wishing to present a brahmini bull should be asked to contribute whatever money they wish to spend, to the district board who should add the necessary amount and purchase a good animal. It is more expensive to feed and keep poor than good stock.

At the close of the year there were 68 horses and pony stallions at work in the non-selected districts which is two less than the sanctioned scale. The produce of these animals is good.

There were 74 donkeys at work in the districts during the year which is one short of the sanctioned scale. Eight jacks were indented for and supplied during the year from the Hissar Farm.

Covering registers are now being more carefully kept, and the department is endeavouring to get more information regarding the young stock produced. The shortage of veterinary assistants rather handicaps this, as their time is fully taken up with treatment of diseases and castrations.

Horse shows were held in six districts during the year.

Cattle fairs were held in nineteen districts. Most of the important shows were attended by an officer of the Department.

Out of the balance of ten merino rams reported in paragraph 24 of the last year's report, four still remain.

Eight merino rams and 25 ewes were imported during the year and sent to Kangra. Merino sheep-breeding now looks more promising. The sheep-owners have been shown what is necessary. Those who opposed have now been convinced.

The establishment of subordinates at the end of the year was 190:—Veterinary Inspectors 15; Veterinary Assistants, 1st grade 34; 2nd grade 70; 3rd grade 71.

This is an increase of six men over the previous year. The Department is still in need of more men. The appointment of deputy superintendents and more veterinary inspectors and of assistants is now being considered.

General remarks.—The question of the veterinary staff being transferred to the district boards has been settled and the staff is to remain provincial.

Proposals to augment the staff by three Deputy Superintendents and to have one Veterinary Inspector for each district are before Government. It is to be hoped that these appointments will be sanctioned as the Superintendents have their time more than fully occupied, and have to work hard to keep the routine work up-to-date.

Cattle-breeding is progressing, but unless the department has extra inspectors, it is impossible for Superintendents to inspect every village and explain to the people what is actually needed. The Superintendents are constantly being consulted on matters regarding breeding; the people have now commenced taking a greater interest in cattle-breeding, as they see from the bulls supplied what can be done by the Department.

The question of ostrich breeding is under consideration. It is to be hoped that the matter will be carefully considered before being started.

Messrs. Woodley and Taylor have worked zealously, and the Chief Superintendent's thanks are due to them for the assistance they have rendered.

Annual Report on the Government Cattle Farm, Hissar.

Review of the Chief Superintendent.

In consequence of the abolition of the Inspector-General, Civil Veterinary Department, the control of the Government cattle farm was transferred to the provincial government, and is now worked under the Chief Superintendent, Civil Veterinary Department.

The year under report has been remarkable mainly in that for the second year in succession there has been a partial failure of the rains; in consequence very little good grazing has been available and only 1,000 maunds of hay have been collected. The barani crop has been a failure. The canal supply is insufficient, and an experiment with a tube well for irrigation purposes is to be carried out. Owing to the excellent system of having rotation crops the cattle have been kept in good health in spite of scarcity conditions.

Owing to the increased demand for bulls for the districts and bullocks for the military department the present sanctioned strength of 1,500 cows will have to be raised to 2,000. The percentage of calves born during the year is smaller than it has been for some years; this is due to two famine years in succession.

The object of the farm is to produce the best bulls and jacks, and thereby to improve the breeding in the districts. If it were not for this, Government would be unable to procure the number of bulls required for the districts, and the jacks would have to be purchased in Europe.

The present quasi-commercial system of charging a nominal price for an animal issued to the district boards in the Punjab, and a higher price for one supplied to another province, prevents the farm from being self-supporting, and the idea of running the farm on commercial lines should therefore be abandoned.

The number of jacks issued is very creditable, and the indents for the Punjab have been fully complied with. Mules issued to the service during the year were a very fine lot. Mule breeding in Hissar is a great success, and the mules are admittedly the best bred in India. The foalings during the year have been satisfactory.

Sheep breeding has progressed satisfactorily.

The revision of the farm establishment is now before the Government.

Mr. Branford has worked hard and deserves credit for his labours.

Report by Mr. Branford, Superindendent.

During the year under report the farm was in charge of Lieutenant-Colonel Farmer from April 1st to June 8th, and under my charge for the remainder of the year.

The farm is up to the present, still being run on the same lines as when under Inspector-General, Civil Veterinary Department. Stock in the shape of siege train bullocks, ordnance and transport mules, and donkey jacks are being issued to the Army Department; and stud bulls, donkey jacks, and half-bred Merino rams to district boards, native states and private buyers. Every endeavour is being made to maintain the stock at the high level of excellence reached while the farm was controlled by the Inspector-General, Civil Veterinary Department, and in this connection it is of advantage that the farm is under the supervision of its late superintendent and still reaps the result of his experience.

Apart from the grass famine the year has been a successful one. The demand for all classes of stock issued from the farm appears to be on the increase.

The years of scarcity have resulted in comparatively cheap labour and many improvements, especially as regards the cultivation, have been carried out, and provided there is a normal supply of canal water and the rains do not again fail, it is hoped to save sufficient fodder to put the farm into a safe position as regards the next period of scarcity.

Hæmorrhagic septicæmia broke out in the rains in the Chaoni Bir. In my opinion many parts of the Bir adjacent to the canal are contaminated with the organism of hæmorrhagic septicæmia, and after long breaks in the rains when puddles of water are almost dried up, the organism is present in sufficient quantities to form a fatal dose for any susceptible animal drinking; whereas a good fall of rain dilutes the bacilli sufficiently to render them innocuous. The same theory is applicable to outbreaks occurring here in the dry season as the result of floods and leakages from the canal. The organism is probably normally present in the canal water, in a state of dilution so high as to be innocuous, but as the puddles formed by over-flows, etc., dry up, a suitable temperature for reproduction of the organism is produced, and also the volume of water is lessened by evaporation, with the result that any animal drinking from such a puddle contracts hæmorrhagic septicæmia. Probably the policy inaugurated last year of preventing canal leakage as far as possible, and preventing access of cattle to low-lying areas liable to receive over-flows, has contributed to our immunity from the disease except in the rains. The disease caused 5 deaths as against 32 last year.

Black-quarter was responsible for 12 deaths, as against 6 last year.

Strangles.—Mild outbreaks only have occurred, causing no deaths.

Navel-Ill still occurs, and with the large number of births and the limited staff on the farm, it is almost impossible completely to eradicate it.

Foot-and-Mouth Disease, as regards deaths, has been a contributory cause only, but in combination with the grass famine has had serious effects in retarding growth and development.

DISEASES OF ANIMALS ACTS 1894 TO 1911, SUMMARY OF RETURNS.

Period.	Anthrax.				Foot-and-Mouth Disease.		Glanders† (including Farcy)		Parasitic Mange.		Sheep Scab.	Swine Fever	
	Outbreaks		Animals										
	Confirm'd	Reported	Confirm'd	Reported	Outbreaks	Animals.	Outbreaks	Animals.	Outbreaks	Animals.	Outbreaks	Outbreaks.	Slaughtered. *
GT. BRITAIN. Week ended Dec. 13	12		13				2	44	54	88	5	74	602
Corresponding week in 1912	9		9				4	4	64	133	3	62	678
Corresponding week in 1911	19		19			1	7	16			17	51	552
Corresponding week in 1910		29		30			1	4			22	37	388
Total for 50 weeks, 1913	560		614		1	23	149	385	2289	4481	198	2461	30560
Corresponding period in 1912	722		816		83	645	170	309	2748	5782	278	2843	38516
Corresponding period in 1911	870		1078		19	487	205	494			392	2381	29214
Corresponding period in 1910		1403		1668	2	15	337	990			449	1489	14147

† Counties affected, animals attacked: Hants 1, London 39, York, West Riding 4.

Board of Agriculture and Fisheries, Dec. 16, 1913.

IRELAND. Week ended Dec. 13	...	...	...	...	...	...	Outbreaks ...	16	...	13
Corresponding Week in 1912 ...	...	...	...	...	...	...	3	8	5	25
Corresponding Week in 1911 ...	...	...	...	...	...	...	1	9	11	85
Corresponding Week in 1910 ...	...	...	...	...	...	...	1	9	1	16
Total for 50 weeks, 1913 ...	...	...	...	...	1	1	112	510	132	868
Corresponding period in 1912 ...	3	3	68	382	...	...	64	358	211	1678
Corresponding period in 1911 ...	9	16	...	...	2	3	56	324	171	2499
Corresponding period in 1910 ...	7	13	...	...	1	2	64	435	90	2135

* These figures include animals slaughtered and found affected on post-mortem examination.

Department of Agriculture and Technical Instruction for Ireland, (Veterinary Branch), Dublin, Dec. 15, 1913

NOTE.—The figures for the Current Year are approximate only. * As Diseased or Exposed to Infection

Foot-and-Mouth Disease.

The existence of foot-and-mouth disease amongst cattle at Whitwell, near Welwyn, Hertfordshire, was confirmed on Monday. The usual precautions were taken to prevent the spread of the disease, and an Order has been issued prohibiting the movement of animals in a large area surrounding this affected farm.

The disease broke out in a herd of 53 heifers and bullocks, over half of which was affected. The animals have been slaughtered. The district scheduled under the Order of the Board of Agriculture comprises portions of the counties of Bedford, Bucks, and Cambridge, practically the whole of Hertfordshire, and the petty sessional division of South Mimms in Middlesex.

The outbreak occurred at Rose Park Farm, belonging to Mr. James Francis Tooley, and the subsequent Order prohibiting the movement of cattle in a large area surrounding the farm, have caused no little consternation in the district in view of the approach of Christmas. At Hitchin the Christmas fat stock show and sale, which was to have taken place on Tuesday, has had to be abandoned.

It is announced that owing to the outbreak the Hertfordshire Hounds, of which Lord Cavan is Master, will not meet until Wednesday, December 24th, at Chicksands Priory.

The cattle, over 50 in number, which were slaughtered, were cremated at Whitwell on Wednesday under Government Order.

The Tuberculosis Order—A Bad Case.

At the Salford Police Court on Friday, December 12th, F. Unwin, of Pump Farm, Werrington, near Stoke-on-Trent, was summoned for a breach of the Tuberculosis (Animals) Order.

Mr. Whitehead, veterinary surgeon to the Salford Corporation, stated that on October 21 he found a cow belonging to the defendant at the Cross Lane cattle sidings. The animal was in such a condition that almost anyone could see that it was diseased. When it was slaughtered a disinfectant had to be used before it could be thoroughly examined. It was the worse case of tuberculosis that had ever come under his notice. On October 24 witness saw four other beasts belonging to the defendant, and Unwin said he had paid £11 10s. for them.

In reply to the Stipendiary, Mr. Whitehead said that had the animals been sound they would have been worth at least £40. They were slaughtered, and three of them were diseased.

The defendant did not appear.

Mr. J. W. Jackson, Deputy Town Clerk, said the Board of Agriculture regarded this class of offence as most serious.

The Stipendiary (Mr. Peter Wilson Atkin) said that the first animal mentioned was evidently in a very bad condition, and the defendant would be fined £15 and three guineas costs. In the other case the defendant must be fined £15 and 5s. 6d. costs. The total fines amount to £33 8s. 6d.—*Manchester Evening News.*

Royal College of Veterinary Surgeons.

EXAMINATIONS IN LONDON.

At a meeting of the Board of Examiners held in London on December 8th for the Written, and on Dec. 12th, 15th, 16th for the Oral and Practical Examinations, the following gentlemen passed their Final Examination :—

Mr. A. H. Adams *	Mr. W. H. Priston
W. P. S. Edwards	K. H. Soutar
C. E. Huston	H. S. Wright
W. B. Howe *	G. Williamson *
G. F. Marais	

The following passed their Third Examination:

Mr. J. W. Beaumont *	Mr. P. S. Sparling
H. Chown	J. H. Stewart
J. Daly *	R. T. Smith
J. A. Edwards	L. D. D. Sewell
J. M. Knighton	J. W. Stanley
G. Simons	H. B. Williams *

The following passed their Second Examination:

Mr. A. Bayly	Mr. D. E. McRae
G. H. Bennet	E. O'Kelly
T. J. Dixon	A. Temple
E. W. Garry	P. F. Woodland
L. St. Bel Golledge	

The following passed their First Examination:

Mr. P. W. Bloye	Mr. J. G. Foulston
J. A. A. Barlow	W. Gibson
E. C. Bowes	

Marked thus * passed with Second Class Honours.

EXAMINATIONS IN LIVERPOOL.

A meeting of the Board of Examiners held in Liverpool on Dec. 8th for the Written, and on Dec. 11th and 13th for the Oral and Practical Examinations, the following gentleman passed the Final Examination;

Mr. R. L. Lewis.

The following passed the Third Examination :—

Mr. G. Lloyd	Mr. E. J. B. Sewell

The following passed the Second Examination:

Mr. S. S. Herbert	Mr. B. Whittam
S. T. Jackson	

The following passed the First Examination :—

Mr. T. Hare.

REVIEW.

A Text-Book of Horse-Shoeing for Horseshoers and Veterinarians.—By A. Lungwitz, formerly Member of the Royal Saxon Veterinary Commission, late Instructor in the Theory and Practice of Horse-shoeing, and Director of the Shoeing School of the Royal Veterinary College in Dresden, Germany; and John W. Adams, Professor of Surgery and Obstetrics, and Lecturer on Shoeing in the Veterinary School, University of Pennsylvania. Eleventh Edition, with 229 illustrations. Pp. 216. Price 7s. 6d. net. (J. B. Lippincott Company, Philadelphia and London).

This widely-known work has now reached its eleventh edition. An American translation of the tenth edition has been in use for some years in the United States, and we are glad that the eleventh is now offered to English readers also.

A book of such established reputation does not demand much critical review. All that is necessary, we think, is to briefly indicate its scope. The first chapter —a long one—is devoted to anatomy, and, after briefly sketching the gross anatomy of the horse, proceeds to deal in much greater detail with all the components of the foot, including its locomotory attachments. The second chapter upon "The Foot in its Relation to the Entire Limb," is mainly physiological, and deals with growth and wear, the physiological movements of the hoof, lines of flight of hoofs in motion and the influence of weights upon them, and similar questions. Another long chapter follows upon the shoeing of healthy hoofs, and covers the whole subject—restraint and manipulation, preparing the foot, making, choosing, shaping, fitting, and nailing of shoes, and shoes for special classes of horse. This is followed by three shorter chapters upon the shoeing of forgers, winter shoeing, and the care of the hoof. Finally, we have three more chapters upon the shoeing of defective hoofs and lame horses—including general considerations, the various acute and chronic inflammations of the foot, and defects in the form and continuity of the hoof, and a short chapter on the shoeing of mules, asses, and oxen concludes the work.

We know no small work which treats the subject with such fullness of detail as this one. It condenses a great amount of information into a comparatively small space, and is simply and clearly written throughout. It will be very useful indeed to veterinary students and practitioners, and almost invaluable to farriers of the better class. We make the latter reservation advisedly, for, in this country at least, we know that there are still many farriers who will not care to go into the subject so deeply as this book will take them. This is our sole criticism of the work—it contains more information than some of the men for whom it was written are capable of assimilating. The rest will find it valuable, and we welcome it as a solid addition to our professional literature.

W. R. C.

ARMY VETERINARY SERVICE.

Extract from *London Gazette.*

War Office, Whitehall, Dec. 12.

Regular Forces. Army Veterinary Corps.

Capt. H. M. Durrant retires, receiving a gratuity Dated Dec. 13

Lieut. F. B. Sneyd resigns his commission. Dated Dec. 13.

Special Reserve of Officers.

Army Veterinary Corps.

F. B. Sneyd, late Lieut Army Veterinary Corps, to be Lieut. Dated Dec. 13.

Messrs. Maw, Son & Sons, of Aldersgate Street, London, E.C., have again been appointed contractors for the supply of veterinary surgical instruments and appliances to the Army Veterinary Service.

Personal.

Macfarlane.—At 385 Great Western Road, Glasgow, on the 9th inst., the wife of James Macfarlane, M.R.C.V.S. a son.

W. Bro. G. H. Williams, M.R.C.V.S., was on Tuesday, 9th inst., installed Worshipful Master of the Lansdowne

Lodge of Unity, No. 626. At the close of the installation, the customary banquet was held, W. Bro. G. H. Williams, Worshipful Master, presiding. There was a good attendance of Provincial Grand Lodge officers. The toasts were interspersed with songs by the Worshipful Master, Bro. R. Heath, Messrs. W. H. Munday and R. Moore, and a recitation by W. Bro. W. H. Brinkworth.—*The Wiltshire Gazette.*

Mr. T. M. INGLIS, M.R.C.V.S., has been sworn a Justice of the Peace for Forfarshire. He was quite recently, unanimously elected Chairman of the Parish Council of the Royal Burgh of Forfar.

The Hunting Memorial Fund.

Subscriptions received up to 7 p.m., Dec. 17th.

	£	s.	d
Previously acknowledged	95	18	6
Mr. T. Salusbury Price, Brixton Hill, S.W.	5	0	0
Henry Thompson, Aspatria	1	1	0
H. Keeling Roberts, Bexley Heath		10	6
Hugh A. MacCormack, Tufnell Park, N.	1	1	0
Sir John M'Fadyean, R.V.C., Camden Town	10	10	0
Maj. A. G. Todd, A.V.C., Aldershot	1	1	0
Mr. Joseph Abson, Sheffield	1	1	0
J. Thornton, Dorchester, Dorset	1	1	0
Sidney Villar, Harrow, N.W.	1	1	0
Wm. Reekie, Oxford St., London, W.	1	1	0
F. J. Taylor, Church St., Kensington, W.		10	6
W. H. Brooke, Handsworth, Birmingham	1	1	0
	£120	17	6

HENRY GRAY, Hon. Sec. & Treas.
23 Upper Phillimore Place, W.

Cheques endorsed "Hunting Memorial Fund" and crossed "The London City and Midland Bank, Ltd. Kensington Branch."

OBITUARY

ALEXANDER MORRISON, M.R.C.V.S., Rhynie, Aberdeenshire. 1862, Graduated, Edin: June, 1880.

Mr. Morrison died on Dec. 9th, from anthrax, after five days illness. Aged 73 years.

EDWARD O'REILLY, M.R.C.V.S., Academy Street, Navan, Co. Meath. Lond: August, 1903.

Death occurred on Tuesday, Dec. 9th.

WM. WRIGHT, M.R.C.V.S., Thornhill, Dumfriesshire. Glas: July, 1882.

Death took place on Dec. 16th, from arterio-sclerosis, at the age of 53 years.

The late Mr. J. A. Thompson, J.P., F.R.C.V.S.

Mr. Thompson was born in Ballynahinch on Jan. 11, 1857, and was a son of the late Mr. Robert Thompson of that town. After receiving his primary education, he passed to the Royal School, Edinburgh, where he continued his studies, subsequently entering the Royal Veterinary College in that city, from which he qualified in 1881. For a brief period he acted as locum tenens to a distinguished practitioner in Wales, and in 1883, after a short residence in Lisburn, he came to reside in Lurgan, where he rapidly built up a large practice and took a prominent place in the life of the community. On the establishment of the North of Ireland V.M.A some years ago he acted as its first treasurer, and in its second year was elected President. Mr. Thompson was also a member of the V.M.A. of Ireland, and of the Irish Central V.A., a veterinary inspector to the Department of Agriculture for Ireland, and to the County Councils of Armagh, Antrim, and Down, and veterinary inspector to the Lurgan Urban Council and the Moira and Lurgan Rural Councils. His wide experience in his profession made his name well-known throughout Ulster, and he was frequently called upon for consultation in difficult or obscure cases. Many years ago his practice in Portadown necessitated his establishing a permanent surgery there, and this has for some years past been under the management of his eldest son, Mr. Robert W. Thompson M.R.C.V.S. In 1890 Mr. Thompson was elected to the membership of the old Board of Town Commissioners in Lurgan, and this position he retained with credit to himself and with much advantage to the ratepayers for thirteen years. Four years ago he was appointed to the Commission of the Peace, and it was generally recognised that no more popular appointment to the local magisterial bench had ever been made. He was ever very keenly interested in agricultural concerns, and the inauguration of the Lurgan Agricultural Association, and the success and popularity of its shows was largely attributable to his initiative and energy. He was a devoted member of the First Presbyterian Church and for years a member of its session. In Masonic circles he was much esteemed; being a P.M., and one of the founders of Ulida Lodge No. 151, a past officer of the Provincial Lodge of Armagh, a P.K. of Royal Arch Chapter No. 24, and an officer of Preceptory No. 134.

The funeral took place on Thursday afternoon, the cortege being one of the largest and most representative seen in the district for many years past. The chief mourners were Mr. Robert Thompson, M.R.C.V.S., Portadown; Dr. John A. Thompson, Edinburgh; and Mr. Charles G. Thompson, M.R.C.V.S., Lurgan (sons); Messrs. R. S. Hanna, Drumaness, and T. Briggs, Holywood (brothers-in-law); Messrs. Vincent Briggs, Holywood, and Robert Pringle, Belfast (nephews); Mr. J. Thompson, Hillsborough (cousin). On arrival at the New Cemetery, the remains were carried to the graveside by four relays of bearers—representative Freemasons, the members of the veterinary profession, members of the Lurgan Agricultural Association, and the staff of the Imperial Hotel, Portadown.

The floral tributes were numerous and very beautiful.

At a special meeting of the Lurgan Town Council, Mr. H. G. MacGeagh, D.L. (chairman) made touching reference to the death of Mr. Thompson. He said before proceeding with the business of the meeting the Council had a duty to perform, and to him, and he was sure to them also, it was a very sad one. Since they last met one of the most esteemed officials of the Council was no more with them. Mr. Thompson was a big man in every sense of the word. He was admired and esteemed, and indeed almost loved by every person with whom he came in contact. He had known Mr. Thompson for thirty years, and never knew of anything that was not to his credit. His death was much to be deplored, and he would be greatly missed in the town and in the wide circle of his friends and acquaintances. It only remained for them to extend their sympathy to Mr. Thompson's bereaved wife and children, and personally, on his own behalf and as Chairman of the Council he would propose that this be done.

The motion was passed in silence, the members standing with bowed heads.—*The Lurgan Mail.*

CORRECTIONS.

Re Vaccine Therapy in last week's issue (1) As a result of traumatic tension, should read. *circulatory congestion.* (2) Microscopically this condition is known as an hepatization, should be *macroscopically.* (3) The focal conditions improve owing to the bacteria in the lung centres being invaded by this first supply of anti-bodies, should read *fresh supply.* WM. SCOTT.